

**【Document Name】 Specification**

**【Title of the Invention】 Solid oxide fuel cell**

**【Range of claims】**

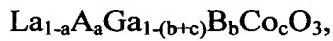
**【Claim 1】** A solid oxide fuel cell (11) comprising an air electrode layer (14), a fuel electrode layer (13), and a solid electrolyte layer (16) interposed between said air electrode layer and said fuel electrode layer,

wherein said solid electrolyte layer (16) comprises a first electrolyte layer (16a) which is made of a lanthanum-gallate oxide and has a first ionic transference number and a first total electric conductivity, and a second electrolyte layer (16b) which is made of a lanthanum-gallate oxide and has a second ionic transference number smaller than said first ionic transference number and a second total electric conductivity larger than said first total electric conductivity;

said air electrode layer (14) is laminated onto said first electrolyte layer (16a) or said second electrolyte layer (16b); and

said fuel electrode layer (13) is laminated onto said first electrolyte layer (16a) or said second electrolyte layer (16b).

**【Claim 2】** A solid oxide fuel cell according to claim 1, wherein said first and second electrolyte layers (16a and 16b) are made of a compound represented by



wherein A is one or more kinds of Sr, Ca, and Ba;

B is one or more kinds of Mg, Al, and In;

a is in the range from 0.05 to 0.3;

b is in the range from 0 to 0.3;

c is in the range from 0 to 0.2; and

(b+c) is in the range from 0.025 to 0.3; and

an amount of Co in said first electrolyte layer (16a) is  $0 \% \leq \text{Co} \leq 80 \%$  of an amount of Co in said second electrolyte layer (16b).

**【Claim 3】** A solid oxide fuel cell according to claim 2, wherein a thickness of said solid electrolyte layer (16) comprising said first and second electrolyte layers (16a and 16b) is in a range from 1 to 500  $\mu\text{m}$ ; and

a percentage of said thickness of said first electrolyte layer (16a) with respect to